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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/614,375	07/12/2000	Thomas Beck Mason	23444-710	2255

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GATES & COOPER LLP
HOWARD HUGHES CENTER
6701 CENTER DRIVE WEST, SUITE 1050
LOS ANGELES, CA 90045

EXAMINER

ZAHN, JEFFREY N

ART UNIT	PAPER NUMBER
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2828

#9

DATE MAILED: 09/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/614,375

Applicant(s)

MASON ET AL.

Examiner

Jeffrey N Zahn

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-75 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-75 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 November 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-75 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claim 1, this claim is indefinite because of the following issues:

- 1) it is unclear how the epitaxial structure claimed is formed/integrated with the substrate;
- 2) it is unclear what the applicant means by an "epitaxial structure", the claim lacks any structural detail to support this feature;
- 3) it is unclear what the applicant means by "a laser", the claim lacks any structural detail to support this feature;
- 4) it is unclear how the claimed laser is formed/integrated within the epitaxial structure;
- 5) it is unclear what the applicant means by "an amplifier", the claim lacks any structural detail to support this feature;
- 6) it is unclear how the amplifier is formed/integrated within the epitaxial structure;
- 7) it is unclear where and how the waveguide is located within the epitaxial structure;

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8) it is unclear how the amplifier and laser share a common waveguide; and

9) it is unclear how the claimed elements/features discussed above inter-relate and function to produce a diode laser assembly as claimed.

Regarding Claims 2-6, 15, 18, 22, 29-30, 32 and 40, in addition to the discussion above in regards to Claim 1, these claims are indefinite because they do not specify the structural details to support the characteristics claimed. For example, Claim 2 specifies wherein "common waveguide has nonuniform optical properties along its centerline." This claim does not specify the required structural details to establish the characteristic of "nonuniform optical properties"; therefore, this claim is indefinite.

Regarding Claims 7-14, 16-17, 19-21, 23-28, 31, 33-39, and 41-43, in addition to the discussion above regarding Claim 1 and Claims 2-6, 15, 18, 22, 29-30, 32 and 40, the wherein clauses claimed do not specify the structural interrelationships required to establish a definite claim. If the issues discussed above regarding Claim 1 and Claims 2-6, 15, 18, 22, 29-30, 32 and 40 are corrected, the wherein clauses may be supported.

Regarding Claim 44, this claim is indefinite because of the following issues:

1) it is unclear where the first and second semiconductor layers are formed in the epitaxial structure and how the characteristic of "different dopings" is structurally supported;

2) it is unclear how the claimed waveguide, first reflector and second reflector are integrated within the waveguide layer and what their structural inter relationship is to the epitaxial structure;

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3) it is unclear what the claimed "optically active medium" is comprises and how this medium is functions within the claimed diode laser assembly;

4) it is unclear what the claimed "amplifier" comprises and how it is formed within the epitaxial structure; and

5) it is unclear how the claimed features/limitations interrelate to produce a diode laser assembly, i.e. how does the laser light travel through the device and how is the laser light effected by the claimed components of the integrated device.

Regarding Claims 45-75, in addition to the discussion above regarding Claim 44, these claims are indefinite because they do not specify the structure and inter structural relationships necessary to support the "wherein" characteristics claimed. If the indefinite issues are corrected, as discussed above with regards to Claim 44, the indefinite issued regarding these claims may be partially/completely eliminated.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 15, 18, 22, 29-30, 32, 40, 44, 45, 51, 52, 63, 64 and 66 are rejected under 35 U.S.C. 102(b) as being anticipated by Welch et al. (US 5539571).

Regarding Claims 1 and 44, Welch et al. discloses a diode laser assembly (Fig. 1) comprising:

a substrate (9);

an epitaxial structure (Fig. 1; see also col. 4, line 46- col. 5, line 16) formed on the substrate;

a laser (11) formed in the epitaxial structure (col. 4, lines 46- col. 5, line 16); and

an amplifier (23) formed in the epitaxial structure, at least a portion of the laser and amplifier sharing a common waveguide (Fig. 1; see also col. 4, line 46- col.5, line 46).

Regarding Claims 2-6, 29, 45 and 63, the laser assembly of Welch et al. has the following characteristics: 1) non-uniform optical properties along it's centerline (Fig. 1); 2) the common waveguide has non-uniform cross sectional area along it's centerline (Fig. 1); 3) the common waveguide has non-uniform curvature along it's centerline (Fig. 1); 4) the common waveguide has non-uniform optical properties normal it's center line (Fig. 1); and the amplifier includes an active and passive region (Fig. 1; see also col. 4, line 46- col.5, line 46).

Regarding Claim 15 and 51, Welch et al discloses a waveguide that is flared (Fig. 1).

Regarding Claim 18 and 52, Welch et al. discloses a waveguide that includes an active region (11).

Regarding Claim 22, Welch et al discloses an amplifier including a plurality of independently controllable active regions (Fig. 2).

Regarding Claim 30 and 64, Welch et al discloses a mode selection element (15)(17).

Regarding Claim 32 and 66, Welch et al. discloses a tunable configuration (abstract).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Coldren (US 4896325), Yamamoto (US 5084894), Hirata (US 5145792), Alferness et al. (US 5253314), Hirayama et al. (US 5274649), Tohmori et al. (US 5325392), Maruska (US 5452118), Delorme (US 5838714), Shimizu et al. (US 6031851), Koren et al. (US 6208454) and Coldren (US 6349106).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey N Zahn whose telephone number is 703-305-3443. The examiner can normally be reached on M-F: 8:30-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on 703-308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



Jeffrey Zahn
September 6, 2002



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